Skytrain Report

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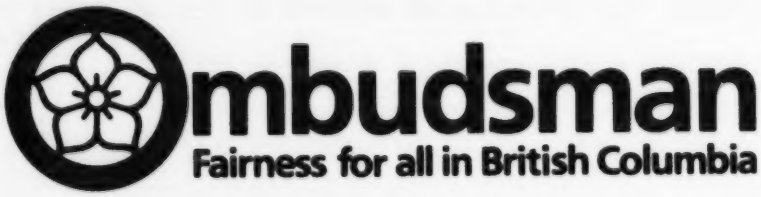

November, 1987

OVERVIEW

The Ombudsman's office has received numerous individual and representative complaints over the past few months concerning the negative impact of Skytrain, an Advanced Light Rapid Transit (ALRT) system, on the enjoyment of private property and community life in Vancouver, Burnaby and New Westminster. The mandate of the Ombudsman's office is to monitor the relationship between public bureaucracies and private individuals in B.C. Section 22 of the Ombudsman Act sets out a statutory code of conduct against which the office must measure the administrative acts of provincial government authorities, including B.C. Transit and the Ministry of Municipal Affairs. This code goes beyond legal rights and includes any government activity which may cause unfairness.

It is the statutory duty of the Ombudsman's office to investigate possible unfairness from administrative action and to recommend change where it is substantiated. Investigations may be on the receipt of complaints or on the Ombudsman's own initiative. The Act confers full powers of enquiry and publication on the Ombudsman in order to create an effective agency for change. In its investigations and reports, the Ombudsman's office does not act as an advocate of the complainant but rather as an impartial monitor of administrative fairness. The independence and neutrality of the office are designed to ensure that conclusions are accepted by both the public and government.

This report considers the negative "externalities" or external costs of Skytrain which are borne by the individual property owners and the communities bordering the system. These costs, to date, have not been fully addressed by B.C. Transit and this report measures the fairness of this omission.

As a general fairness principle, the costs of a public undertaking should not be disproportionately borne by particular individuals. This is the basis for the payment of fair compensation to property owners whose property is expropriated for a public purpose. The costs of the expropriation are then paid by the public at large through general taxation. On the other hand, urban living unavoidably involves some change and disruption in return for the cultural, social, economic and transportation advantages it offers. It is not reasonable to expect that the external costs of these benefits can be calculated and compensated for completely.

All public institutions owe a duty of fairness to individual citizens which extends beyond their narrow statutory mandate. B.C. Transit is responsible for providing efficient public transportation. In doing so, it must also ensure that it is a beneficial force in all aspects of community life.

This report is not a technical document. It identifies the major enduring frustrations caused by Skytrain for individuals and communities and addresses in a practical way the alternatives open to B.C. Transit to improve the situation. The recommendations are designed to enhance the benefit of Skytrain to the communities through which it now passes and thereby to promote its future acceptance by other communities through which it hopes to expand. The major findings and recommendations are as follows:

* Skytrain is an effective advanced transportation system with the potential to promote commercial development and to integrate harmoniously with the residential neighbourhoods through which it passes. However, the system has not yet achieved its promised levels of community acceptance.

* The negative external effects of Skytrain currently include in some areas unacceptable noise levels, a harsh and forbidding presence, loss of privacy, reduced property values and a depreciated enjoyment of individual and community lifestyle. The impact over time of these effects will include a gradual deterioration of the neighbourhoods with associated social and economic costs, a less desirable transportation system, and a loss of public regard for the Skytrain concept.

* Law suits are the least appropriate solution to settle the concerns of adversely affected property owners. Similarly, a private compensation scheme is likely to be arbitrary and divisive and risks paying off individuals at the expense of a deteriorating community. Instead, B.C. Transit should take responsibility for a coordinated mitigation program of selected property purchase, noise abatement and community improvement through both its own direct efforts and through the funding of a rebate scheme for private property adjustment.

The objective of this report is to offer constructive ideas for the promotion of Skytrain as a positive force in all aspects of community life. The fair treatment of individuals on which it impacts will ensure its effective operation and its enriching influence on the communities through which it passes.

Stephen Owen
Ombudsman

SKYTRAIN REPORT

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Chapter 1 Background

In January of 1986, Skytrain began operating between Vancouver and New Westminster. The system consists of automated electrically powered railcars which run on underground, street level and elevated track. Skytrain represents innovative technology and state of the art computer control. Skytrain runs seven days per week, approximately nineteen hours per day. Trains run from one to five minutes apart and at speeds of up to seventy kilometres per hour. The track is twenty-one kilometres in length, of which 13 kilometres is on elevated guideways, six kilometres is at grade and two kilometres is underground.

Planning the type, route and integration of the rapid transit system involved a lengthy consultative process between B.C. Transit, provincial and municipal governments, community groups and property owners. Originally, a Conventional Light Rapid Transit (CLRT) system was contemplated. This system would have operated at grade, powered by electricity overhead. Public meetings and the municipalities' recommendations addressed the preferred alignments and the consequential effects of such a system. However, in late 1980 the Province proposed an ALRT system. A major difference was that it would be run extensively on elevated guideways. The differences between the CLRT and ALRT

necessitated new study and consideration by all involved. Further public meetings were held and informational literature was distributed by Urban Transportation Development Corporation Limited (UTDC), manufacturers of Skytrain. A brochure distributed by UTDC in 1980-81 claimed that "the system is extremely quiet and small in scale" with "low noise emission on tangent and curved track of 67 dB(A) at fifty feet." At a public meeting in 1982 the proposal for Skytrain was well received. With repeated assurances of minimal levels of noise and physical intrusion, residents along the proposed alignment generally accepted the Skytrain proposal. At the same time, resolutions emanating from public meetings emphasized the concerns that the system should be aesthetically pleasing so as to blend with the community and that it should result in only minimal view blockage or privacy intrusion.

In 1983 the City of Vancouver prepared discussion papers entitled "ALRT Alignment Landscaping Guidelines" and "ALRT : A Noise Study". The Noise Study predicted noise impact on adjacent residential areas. It concluded that specific noise attenuation measures would be required. The landscaping guidelines were premised on the philosophy that for neighbouring residents "landscaping must reduce loss of

privacy, feeling of intrusion, light overspill, perception of noise and the harshness of the concrete structure and/or chainlink fences." Detailed landscaping plans were outlined for each neighbourhood station and area.

Each neighbourhood in Vancouver through which Skytrain would run established an Area Planning Advisory Committee. These committees predicted and evaluated potential impacts of the Skytrain on their neighbourhoods. In close cooperation with the City of Vancouver Planning Department, detailed analyses of negative effects were undertaken and mitigation solutions recommended. The City of New Westminster also classified adjacent properties according to severity of impact. Negotiations between B.C. Transit and the municipalities were ongoing with respect to the implementation of recommendations. Despite the considerable pre-ALRT study and consultation, many property owners were surprised and dismayed when Skytrain began full operation in January 1986. Residents were disappointed to discover that Skytrain was considerably noisier than they had been lead to believe, the landscaping and screening provided was insufficient and ineffective and property acquisition for severely impacted properties was refused. Noise levels from Skytrain in early 1986 consistently registered above the contracted maximum levels; landscaping consisted mainly of sparsely planted trees and shrubs; and compensation was denied by B.C.

Transit. The concerned residents' group, Home Owners Against Skytrain Effects (H.A.S.T.E.), was formed March 12, 1986 as a result of this frustration.

B.C. Transit has defined its responsibilities in relation to its governing legislation. Since the legislation is general in scope and concerned with all public transit systems, many of the effects of Skytrain are not addressed within it. Negotiations with B.C. Transit were held with the objective of the municipalities being to define and expand the range of effects for which B.C. Transit would accept responsibility and take remedial action. Many of the adverse effects which were predicted and are, in fact, occurring have been considered by B.C. Transit to be unavoidable and outside of its statutory responsibility. B.C. Transit does not believe it can feasibly alleviate the privacy intrusion or loss of view problems and claims of decreases in property values have not been proven to B.C. Transit's satisfaction. B.C. Transit does accept responsibility for the noise problem and so has continued to research and implement new ways of reducing the noise levels. However, the range of responsibility recognized by B.C. Transit and its subsequent remedial efforts are considered by adjacent residents and their municipalities to be inadequate in view of the size and impact of the Skytrain system.

Chapter 2 Complaints

This report on the impact of Skytrain was initiated at the request of individual property owners who complained that the negative effects of Skytrain were affecting them to an inordinate degree. They claim that residing adjacent and near to the guideway has meant a significant decrease in the enjoyment and market value of their properties. This reduction in the benefits of home occupancy is attributed to the impact of Skytrain by way of visual intrusion, loss of privacy and views, excessive noise and shadowing. The complainants claim that the real and potential consequences of Skytrain on their property raise serious issues which cannot be ignored in a society whose economy, culture and legal traditions are based on private ownership of property.

It is apparent that there are a variety of negative effects arising from the Skytrain system. The external costs of the system comprise a whole range of effects on individuals and communities and a variety of action is required to counter them. In order to determine the appropriate remedies some categorization and analysis of the impact must first be made. The specific negative effects are described separately below.

1) Loss of privacy

Skytrain carries its passengers through the heart of several residential communities hundreds of times each day. For most of the journey Skytrain runs on elevated track. Views from the train's windows offer panoramic vistas of coastal mountains. Alternatively, passengers can observe family life through living and dining room windows and in many yards and patios. Some passengers have complained that some property owners are not maintaining their properties and are thereby marring the passengers' views. Privacy for many property owners has disappeared. There are few barriers screening Skytrain from properties along the alignment. Some properties are close enough to allow the passengers and residents to clearly see the expressions on each others faces.

Many residents have felt compelled to live in their homes darkened by constantly drawn drapes. Another serious consequence of the privacy invasion is the restriction on use of outdoor space. A major advantage to many people of houses over apartments is the opportunity to enjoy in privacy, yards and patios for gardening, barbecuing or merely relaxing. Enjoyment of these activities is reduced by having strangers watch, especially when a train is temporarily stopped adjacent to the property.

People are attracted to single detached dwellings in quiet residential neighbourhoods for comfort and privacy away from the pressures and activities of urban living. These are not available in a home which is virtually on display to the public. Peaceful and private enjoyment is one attribute of home occupancy which motivates many people to commit a large portion of their income toward the rental or purchase and maintenance of a house and it is unfair that it should be disregarded.

The right to privacy is recognized in statutes in many Western jurisdictions. In British Columbia, under the Privacy Act, R.S.B.C. "it is a tort, actionable without proof of damage, for a person wilfully and without a claim of right, to violate the privacy of another." This is a comparatively recent recognition of the right to privacy. There are some important exceptions and limitations. The nature and degree of privacy to which a person is entitled depends on what is reasonable in the circumstances, considering the lawful interest of others. These circumstances may differ extensively between a single-detached home environment and a high density apartment environment.

The invasion of privacy by daily commuter traffic may not constitute an infringement of the statutory right to

privacy. It could be regarded as an innocent, and to some degree unavoidable, consequence of urban living.

However, with or without statutory protection, the loss of privacy does represent a significant interference with the use and enjoyment of property. Loss of privacy will diminish the standard of living for present and future generations of residents unless it is remedied.

2) Loss of view and shadowing

Some residents, prior to Skytrain, enjoyed pleasant views of the delta, Mount Baker, the North Shore or the City skyline. Other properties received an abundance of sunlight. The Skytrain guideway stands very close to a number of properties. Its concrete pillars and elevated track interfere to varying degrees with views and sunlight. In the winter when the sun sits low in the sky the overshadowing guideways have an especially depressing effect on nearby residents. These effects are, of course, very frustrating to the residents. However loss of views and shadowing are risks to which many urban dwellers have been and will be subject. Recent court decisions have held that the law does not recognize a resident's right to a perpetually uninterrupted view or sunlight.

Skytrain is an elevated rail system and therefore loss of view and shadowing are unavoidable effects. Complaints have arisen because of the perception that private views were not accorded serious consideration when the guideway heights were selected and because the property acquisition program of B.C. Transit was so inadequate that there are horribly overshadowed homes less than 50 feet from concrete pillars. Nothing can be done about the loss of views and as stated earlier this is a common risk to urban dwellers. The shadowing problem however should be reviewed in terms of determining what is a reasonable amount for residents to accept. Houses which are virtually underneath the guideway are subject to an unacceptable degree of shadowing.

3) Excessive noise

The Vancouver Health Department predicted in 1983 that Skytrain would produce excessive noise levels for residential areas. UTDC contracted that noise emissions would not occur in excess of 74 dB(A) at fifteen metres. This measure refers to the passage of a single train.

Annoyance with noise results from a combination of sound pressure from a single event, frequency of those events and the ambient noise levels (levels of noise existing without

Skytrain). Skytrain passes by frequently and so a measurement which accounts for this frequency is a better indicator of the Skytrain noise impact level. A measure of noise over a twenty-four hour period, called the twenty-four hour equivalent sound level [decibels (Leq)], is generally used to determine noise impact on residential areas. Canada Mortgage and Housing Corporation (CMHC) has adopted 55 dB(Leq) as the maximum outdoor noise level for its residential projects. Annoyance with noise sharply increases when 55 dB(Leq) is exceeded. The City of Vancouver has adopted this level as the point above which special noise mitigation design measures are required in new residential developments.

Several noise impact studies of Skytrain were conducted in 1986 and 1987. Skytrain noise levels were found to be well above the UTDC stated maximum of 74dB(A) and the CMHC criteria in the beginning period of operation. Since this initial period, B.C. Transit has attempted to lower the noise emission of its system through improved rail and car maintenance and reduced speed of the trains. To date the Leq noise level has been markedly reduced, to below the CMHC maximum at some test locations. However, single event noise level from individual cars is continuing to exceed the manufacturer's guaranteed level of 74dB(A) at fifteen metres and the Leq noise level remains above the CMHC guidelines in some areas.

In lay terms, these scientific measurements confirm the basis for residents' claims of disturbed sleep patterns, the need to raise one's voice to converse and reduced enjoyment of outdoor areas and patios. It is recognized that frequent non-continuous intrusive noise is difficult to adjust to and can significantly impair the quality of life. The 1986 Vancouver noise study stated "based on several criteria, these noise levels are shown to have significant potential to affect the health and well-being of individuals close to the alignment."

In 1970 the Ontario Department of Highways released a comprehensive report entitled "Noise and Vibration Control for Transportation Systems" in which the psychological and social effects of noise are discussed. It states that a psychological effect of noise is annoyance, which although subjective is nevertheless real. Annoyance usually increases with the frequency of the noise, the difference between the noise level and ambient sound levels, inappropriateness to one's activity, belief that the noise is unnecessary or preventable and belief that noise will affect health. The report notes that even if a person is not awakened by the noise "the period of deep sleep (important to health) may be affected." The social effects of annoyance and sleep and speech interference due to noise can include changes in property values, land use patterns and regulations.

The serious far-reaching effects of excessive noise have made it a legitimate basis for claims of nuisance and for adoption of noise bylaws. Residents were repeatedly assured that Skytrain would be a quiet system. However, it has loudly transformed their quiet residential streets. Excessive noise constitutes a significant adverse impact on the residents adjacent to the alignment.

The contract for Skytrain guarantees a maximum sound level compatible with urban residential living. However, the reality is that the contracted maximum sound level is regularly exceeded and quiet streets have been transformed into the equivalent of busy thoroughfares. Peace and quiet have become a thing of the past, as some residents must regularly raise their voices to converse, turn up TVs and radios, and sleep in stuffy rooms with closed windows. These are minor irritations when they occur infrequently, but when they are suffered on a daily and nightly basis nerves can become frayed, and a sense of contentment can become unattainable.

4) <u>Decrease in property values</u>

Determining changes in property values directly resulting from proximity to the Skytrain is a challenging endeavour. The value of a property is influenced by a number of fixed

and varying factors. Any large public project may cause neighbouring properties to exhibit both increases and decreases in value. Rail commuter systems in other North American cities have, at some points along their lines, caused increased property values. This has occurred, for example, close to stations or where property has been rezoned to commercial or higher density residential use. Yet at other points along their lines they have contributed to a decrease in property values. Unfortunately a thorough comparative value and sales analysis since the operation of Skytrain is not available.

It has been suggested that property tax assessment rates could be used as indicators of changes in property values which could be attributed to Skytrain. The B.C. Assessment Authority closely monitored the market within two control areas in 1985 and 1986 and compared them with the balance of the neighbourhood. Over 100 property sales in the 2 year period were recorded. The results of the study were that there were some decreases in property value estimated to be in the range of 5-10% that could be attributed in varying degrees to Skytrain.

Even lacking conclusive evidence of Skytrain-caused decreases in property values, it is inevitable that the more severely impacted properties that are not near the stations or major arterial routes are worth relatively less today as single, detached residential homes than prior to Skytrain. Equally, some properties will likely, in the long term at least, gain in value, for instance those near to stations and commercial areas. Nevertheless, a decrease in property value must be considered a significant adverse impact where it has occurred.

5) Community Perception Impact

An intangible but vitally important external effect of any transportation system, and Skytrain in particular, is the community's perception of it. This effect may be positive or negative but the potential consequences of a predominantly negative perception make it worthwhile to address. Obvious influences on the perception of a system are user safety, cleanliness, fare price and convenience. Perhaps less obvious but equally important are the view from the train and the system's impact on the character of the areas through which it passes.

Ideally, Skytrain will be able to boast that it has acted as a catalyst for economic development, enabled the creation of

a long and beautiful parkway and provided breathtaking views to passengers as well as clean and safe service. All of this can be realized if Skytrain is deliberately integrated into the community. With respect to economic development, the station areas offer great potential for commercial growth and spin-off benefits. In these areas the impact and perception of Skytrain should already be positive.

The residential areas provide the greater challenge to Skytrain in terms of its public image. At this time the perception of the relationship between Skytrain and many residents is not good. The affected households are dissatisfied, an increasing number of passengers are unimpressed with their immediate views and people residing along future potential Skytrain alignments (e.g. Kerrisdale) are horrified at the possibility of Skytrain invading their neighbourhoods. All of this makes Skytrain difficult to promote as expansion is attempted in other communities.

Municipalities' and property owners' conditions for willing acceptance of Skytrain could become excessive simply because of B.C. Transit's poor public image arising from its refusal to grant equal value to its system's integration in the community with its technological excellence.

Public authorities must accept that their responsibilities extend beyond their service mandate. Importance must also be placed on the compatability of their services with all interests affected by them. B.C. Transit should not consider that its obligations are only those specified in the public transit legislation. The public has a right to expect B.C. Transit to be a caring community member. This can only be achieved by B.C. Transit embracing a broad definition of its mandate and responsibilities. To do otherwise would perpetuate a negative perception of Skytrain and result in unnecessary future costs.

The major source of negative community perception is B.C. Transit's failure to provide adequate mitigation measures and to acquire uninhabitable property. The eventual results may be that passenger views are of abandoned properties, and that other communities are unaccepting of Skytrain's expansion through them. Skytrain need not be considered an obnoxious eyesore. The future direct and indirect costs of a strong negative perception of Skytrain would be regrettable. They are also avoidable.

Chapter 3 Discussion of Alternatives

Every major public project brings with it negative "externalities" or external costs which can be predicted well before the project is constructed. These have been identified with respect to Skytrain in the previous section. Experts in urban planning and economics identify three major alternatives for minimizing or eliminating these externalities: prohibition, compensation and mitigation. Prohibition refers to not allowing an action which will result in an external cost. A ban on highways in residential areas is an example. Compensation allows actions which result in external costs but at the same time pays individuals for bearing the burden of some or all of those costs. Compensating those living along a noisy highway is an example. Mitigation also allows actions which will result in external cost but in such a way that the resulting external burdens are not borne by individuals. Erection of sound barriers along highways so that the noise is reduced to acceptable levels for adjacent residents is an example of mitigation.

The appropriate options for any proposed project are best determined during the planning stage of the project. Prior to construction of the project, all three options are

available and can be objectively assessed. Careful cost benefit analysis incorporating the alternatives should be undertaken at this stage. Then the appropriate options can be included in the design and the budget of the project. Obviously, after a project is constructed, options are limited and application of an option may be more difficult or expensive because it was not incorporated in the project design.

With respect to Skytrain, minimization of the negative impact was inadequately addressed in the planning stage, so the remaining options may be more difficult to implement. The major remaining options are compensation and mitigation. These alternatives would "internalize the externalities" by incorporating the external costs of the system so that they are paid for by the general public. Internalizing these costs should be a high priority objective during the planning stage of a project so as to prevent unfairness and dissatisfaction among residents adjacent to the project, and to prevent a severe impact on residential neighbourhoods.

1) Prohibition

Although Skytrain is in place from Vancouver to New Westminster, consideration of the prohibition alternative may

be useful for future expansion of the system. Prohibition does not necessarily mean foregoing the system. Prohibition can include route selection and grade selection of the alignment. Prohibition can also include size selection of the system. In other words prohibition is a flexible option.

From the Vancouver-New Westminster experience it is apparent that careful route selection is critical to minimizing the negative external costs of Skytrain. Minimal intrusion in residential neighbourhoods is an obvious objective. Some intrusion is essential in order to benefit commuters but where a reasonable non-residential alternative exists it should be preferred. A consultative process with the prospective communities must be undertaken.

The preponderance of local residential resentment to Skytrain stems from the fact that it is primarily an elevated system. Where the track is at grade or below, mitigation measures can be more easily implemented so that the benefits of proximity to the alignment outweigh the costs. Large concrete pillars and guideways and frequently passing trains are difficult to integrate successfully in an area of single family homes. It should be possible to prevent local opposition and resentment if, when given the choice, the track is not elevated in residential neighbourhoods.

These are two important prohibition methods which should be given serious consideration in the planning of further Skytrain expansion. There are certainly other methods which could be employed. A recognition of the severe potential impact of Skytrain should stimulate consultation and discussion of various preventative options.

2) Compensation

Individual property owners have requested that they be compensated by B.C. Transit or the government for the negative effects arising from Skytrain. Compensation has been denied in all cases. Despite the seriousness of the negative impact it may be that neither B.C. Transit nor the government is legally obligated to compensate individuals who have had no part of their property expropriated. The B.C. Transit Act protects the government from claims of injurious affection arising from the transit systems. B.C. Transit maintains that it has no authority, under the Act, to pay compensation where no expropriation has taken place. The complainants in this case have requested that the government offer ex gratia payments to property owners in recognition of a public moral obligation despite the possible lack of legal liability.

If the government were to offer ex gratia payments the question arises as to how it would implement its decision. With any compensation scheme the government must be able to resolve two critical issues: identification and quantification. It must be able to identify what the compensable effects are and who will be entitled to compensation, i.e. who is sufficiently injuriously affected. Then, it must be able to measure the relevant impacts and place a value on them. Where property has not been expropriated and the effects are varying and widespread, this task would be formidable.

As previously stated, Skytrain and any large public project will cause a whole range of impact. Obviously not all effects and not all degrees of impact would warrant compensation. The government would have to create objective criteria upon which to determine compensability. This is not as simple as it may appear unless arbitrary limits were designated. In fact, any criteria chosen would be to some extent arbitrary. Those outside the compensable limit would remain dissatisfied without rational justification for their exclusion.

After identifying the range of compensable impacts the government would then have to decide who would be entitled to

receive the compensation. Compensation could be paid to current property owners, property owners at the time Skytrain was announced or when it commenced construction or operation, or to occupants and tenants at present or at the time of construction, or first operation. There are several possibilities and each one is valid in terms of those who have been negatively affected in some way by Skytrain. The final choice, again, would have to be somewhat arbitrary.

The next challenge for the government would be to quantify the compensable impact. Some measure of the impact would have to be made and a monetary value assessed. The difficulty is that most of the Skytrain impact relates to intangibles for which there is no market value. For example, there is no market value for right to privacy so an accurate assessment of this loss would be impossible. To be fair, objective criteria should be used, but most of the negative effects of Skytrain are subjective in nature.

One suggested criteria is changes in property value. However, the accuracy of an assessment of the reduction in property value solely attributable to Skytrain would be doubtful. Unlike assessments for the purpose of expropriation where the value of a property at one point in time is sufficient, for the purpose of negative impact

compensation a comparison of the values at two different places and points in time is required. The points of time for valuation must be decided: for example at the announcement of Skytrain and at commencement of operation, or at commencement of operation and present day. Several years will span the two valuation points and all factors, other than Skytrain, which influence a property's value would have to be factored out of the calculations. A control neighbourhood distant from Skytrain but similar in other respects to the Skytrain neighbourhoods could be monitored for comparison purposes. However, the choice of control neighbourhood could be contentious. The B.C. Assessment Authority's comparative sales survey covering 1985 and 1986 did not reveal significant differences in market sales, yet we know that many properties have been severely impacted and rendered less attractive as family homes.

To assess compensation amounts solely on property values would involve going to great expense, only to rely on imprecise and contentious valuations. The quantification conclusions would be further distorted by the subjective impact. Such a process would invite controversy as undoubtedly many would remain dissatisfied and challenge the compensation offers. The other option would be for the governmment to arbitrarily select compensation amounts in

return for binding waivers of further legal actions. It is questionable whether this would be fair to the recipients and also to the taxpayers who have a right to expect reasonable limits on ex gratia payments from public funds.

The practical difficulties associated with compensation lead one to review the costs and benefits of this option. To choose the compensation option is to endorse the ongoing existence of the external costs. Individuals would be paid in effect to live in an environment which others would not consider acceptable and which is below established noise guidelines for residential areas. If the government were to pay the property owners, the compensation would not necessarily be provided to the people who actually live with the negative effects, for example tenants.

The financial costs of compensation cannot be estimated accurately at this time. At the least, however, the costs of compensation would include the expense of overcoming the practical difficulties of developing eligibility criteria and assessing or valuing the compensable impact. This would necessarily require the expertise of appraisers, accountants and other professionals. Should hearings or lawsuits become necessary the costs would rise dramatically. These attendant costs would be in addition to the actual compensation to be paid to the eligible property owners.

The social costs of the compensation option are equally important. Compensation requires the transfer of public funds to a select group of individuals. The focus therefore, is not on benefitting the neighbourhoods or larger communities. The negative effects continue to exist. The probable result would be, despite payment of compensation, gradual deterioration of the residential neighbourhoods through which Skytrain passes. Enjoyment in riding Skytrain would decrease as the views worsened. A resulting social cost would be the decline in prestige and respect for Skytrain as commuters and communities were reminded daily that the system was constructed without adequate consideration for its negative impact.

At the same time that government may appear incompetent with respect to dealing with the negative effects, individuals could regard payment of compensation as a precedent for past and future projects. This could mean substantial financial costs and planning difficulties in the future. Future public works could incur prohibitive costs because of numerous claims from property owners near and far. With transportation systems in particular, the compensation precedent represents a large risk as almost every aspect of a transportation system affects property in some way.

The major advantage of compensation is that it is a direct tangible benefit to those adversely affected by Skytrain. It recognizes the additional cost that these persons bear because of their proximity to the alignment. It would be an attempt to even out the distribution of costs of the system. Payment of compensation would reduce resentment among the property owners and demonstrate that government acknowledges its responsibilities to everyone concerned with Skytrain. This may have the additional benefit of preventing lawsuits against the government. However, on balance, it is not a preferred option of this report.

3) Litigation

Although the government may not be statutorily liable to pay compensation, individuals still may exercise their common-law right to sue the government for nuisance and/or negligent misrepresentation.

Skytrain was promoted as a quiet and non-intrusive, technologically advanced transit system. It was to be an example to the world that commuter rail transit could be both efficient and compatible with comfortable urban living. Skytrain has lived up to much of its promise. However, with respect to the negative effects discussed above, it has

proven disappointing. Although the City and community committees were predicting some adverse impact, many individuals were only aware of the government's and UTDC's promises and assurances. Many property owners relied on these assurances and so did not attempt to sell or to prepare their properties for Skytrain. These individuals seem to have been lulled into a false sense of security and were thereby discouraged from protecting their interests through mitigation options. Some have accused the government of negligent misrepresentation which they claim to have relied on to their detriment. They may launch a lawsuit against the government on this basis, in conjunction with nuisance claims.

The government should seek to avoid such a confrontation with its citizens. Private actions would misdirect the focus of the Skytrain impact problem. They would not provide a sufficient community response to this multi-faceted problem. Energy and resources would be focussed on defending individual legal claims while the issues are much wider and of greater importance.

To defend a series of legal actions, for dubious purpose, would involve a considerable cost and risk. Despite strong government legal defences, such as the statutory authority to build the system, the outcome is not certain. The expense to the taxpayers could be great, especially if the government were to lose and have to pay damage awards.

In a recent decision of the Supreme Court of Canada, confirming the decisions of the Ontario lower courts, the Ontario government was found liable in a nuisance claim for the adverse impact that its highway salt spraying program had on adjacent farmers. This decision could have significant financial consequences for the government in future litigation concerning adverse effects of public projects on individuals.*

If the government were to win the threatened Skytrain cases, it is uncertain that there would remain sufficient will and resources to address the long term interests of the community. The court system may not be the appropriate vehicle for resolution of what are essentially planning problems. Considering the already stretched resources of the courts, such legal action would also be an unfortunate burden.

If possible, court action should also be avoided because it may be unfair to put individuals to the trauma and expense of a law suit. The affected property owners acted reasonably in accepting Skytrain on the basis of the system that was promised to them by B.C. Transit and UTDC. They believed the government when it said Skytrain would only benefit them. But the impact of Skytrain has been far more disruptive to these residents than they could reasonably have predicted.

*Schenck et al v The Queen in right of Ontario, Supreme Court of Canada, October 1987.

In the event that legal action by the property owners becomes unavoidable, the government should respond in a fair manner. The property owners and H.A.S.T.E. have in good faith attempted every lawful non-litigious approach available to them in their efforts to obtain relief from Skytrain's negative effects. They have requested, and the government has invited this office to investigate and recommend solutions to the Skytrain impact problem. It would be unfortunate and unjust if the government were to take advantage of the owners' goodwill by attempting to quash any future legal action on the ground that the statutory time limit for these claims had expired. Access to the Ombudsman's office should not be limited by a potential risk of losing the right of legal action. B.C. Transit and the provincial government should agree not to raise a statutory time limitation defence in any subsequent lawsuit commenced by adversely affected property owners until at least the end of 1988, to provide the opportunity for full and fair consideration of the issues raised in this report.

4) Mitigation

Skytrain is highly intrusive in every residential area through which it passes. It therefore has the potential to radically alter the character and quality of these neighbourhoods. The very nature of a stark concrete and

steel rail system makes, without mitigation, the deterioration of some areas unavoidable. Skytrain should not be permitted to make neighbourhoods less attractive in which to live. The demise of a once tranquil and private neighbourhood represents a heavy loss to the individual residents, who will eventually attempt to move away, and perhaps an even greater loss to the community as a whole. Urban neighbourhoods can deteriorate with surprising speed; only at great expense can they be rejuvenated.

Such an outcome potentially will cause long term social and economic costs. It also represents an additional cost shouldered only by the affected individual residents, in addition to the user fees and taxes that they also pay along with the whole tax paying public. These property owners pay fares, special Lower Mainland Skytrain taxes and general revenue taxes, and then have to live in less habitable neighbourhoods. The unfairness of this situation is obvious. The Ontario Department of Highways report quoted earlier suggests that a transportation agency should have "a greater obligation to adjacent residents where the houses existed first." The government's general responsibility to minimize negative effects must extend, in some way, to these individuals.

Another compelling reason for government to minimize negative effects relates to the long term costs to the whole community, discussed above. At this time Skytrain passes through clean, quiet neighbourhoods which generally contribute significant taxes to the public treasuries. If the adverse impact of Skytrain is allowed to continue unabated these neighbourhoods will become less appealing places to reside. The result may be that residents lose the motivation to enhance or even maintain properties in what could be neighbourhoods of declining habitability. It does not make sense to ignore this possibility, especially when Skytrain may extend through other residential areas. As well, it should not be forgotten that an unpleasant view for the passengers of Skytrain will lessen appreciation for the system.

It is not fair that one group which suffers the intrusion of the system (literally at their back yards for some) should bear this additional cost with absolutely no mitigation of the negative effects. The total internal and external costs of the public work should be shared as equitably as is feasible. Also, to allow neighbourhoods along the alignment to deteriorate may result only in postponing greater social and economic costs in the future. This would be irresponsible and inconsistent with the foresight and fairness expected of government.

The advantage of exercising the mitigation option rather than offering compensation is that mitigation addresses the twofold nature of the Skytrain impact problem. Mitigation can simultaneously ameliorate the negative impact both on individual residents and on the community. In fact, mitigation measures can produce appreciable benefits from an otherwise negative situation. Unlike the compensation option, mitigation does not represent an endorsement of ongoing negative effects. Instead, mitigation measures would indicate a rejection of the adverse impact and a positive determination to maximize the potential benefits of a new transportation system.

Mitigation cannot, of course, eliminate all of the negative impact of Skytrain. Especially where the guideway is elevated, amelioration possibilities are limited. It has been suggested that in such cases compensation would be appropriate. The problems surrounding the compensation option have already been discussed.

It is important to bear in mind that there are certain trade-offs inherent in urban living. City life demands some sacrifice in terms of privacy, quiet and permanence of environment. Reduction in living space, noise and continual development are inseperable from urban prosperity and

growth. These are the costs of living in cities as opposed to rural areas. There are many benefits which, for the city dweller, generally outweigh these costs. Cultural and social activities, vocational and commercial opportunities and inexpensive convenient transportation services are a few of these benefits. There can be no inalienable right to an unchanged neighbourhood. Some change is inevitable and there can be no guarantee that it will always be for the better. It is a question of reasonableness in the particular circumstances. If all feasible and reasonable efforts have been made to minimize negative change and the remaining impact does not render a property unsuitable for its purpose, then there should not be a right to claim compensation merely because the environment is not exactly as it was originally. Except, therefore, in certain isolated cases (discussed below) mitigation is the most appropriate remedy to the external costs of an existing system.

The mitigation measures which the government should undertake must take into account the differing extent and nature of the adverse effects and have as their objective the reduction of annoyance to the community and not merely the reduction of complaints by individuals. Softening the harshness of the structures, providing a greater sense of separation from the alignment and taking advantage of a long corridor of public

land should be the basic objectives. In this way the system will integrate within the residential areas in the most attractive and least intrusive fashion. Individual properties, the passengers and the communities themselves will receive a greater benefit. The negative effects which are a cost of the system would be minimized over the long term and in many respects could be converted into benefits.

Mitigation appropriate to Skytrain should encompass both public and private properties. Certain measures can be taken on public property and benefit directly the passengers and the communities. Other measures must be offered to private property owners directly to benefit their residences and indirectly the whole community. In this way all interests can be addressed.

An obvious mitigation measure is to make every feasible effort to quiet the system itself. Attaining the manufacturer's guaranteed levels of maximum noise should be a minimum goal. Presumably, funds for this purpose can be obtained from the manufacturer. To enhance the integration of the system the CMHC maximum outdoor noise levels for residential areas should be the optimum goal.

Ample and attractive landscaping represents a comparatively inexpensive mitigation measure which would benefit property owners, passengers and the communities. The landscaping to date has been far too sparse to constitute an adequate mitigation attempt. The recommendations of the City of Vancouver Planning Department, approved by City Council, should be endorsed by the provincial government and B.C. Transit. These recommendations arise from extensive consultation with neighbourhood committees and exhaustive research and analysis. The focus of landscaping must be on visual screening to provide privacy and a sense of separation from the alignment. The result will include an attractive greenbelt. Tall and densely planted trees are required, such as fast growing conifers.

Certain areas along the alignment lend themselves to solid fence barriers. While not as attractive as landscaping, solid barriers are more effective at reducing noise levels in adjacent neighbourhoods. The Ministry of Highways has erected sound barriers with much success, and has done so on private property as well. The wood fencing along the Upper Levels Highway in West Vancouver is one example. Where landscaping or solid barriers could be most effective on private properties the government should not hesitate to proceed, as the benefits will accrue to more than just the individual property owner.

Other measures which should be offered to individual property owners include assistance to improve their properties. For example the government could offer a rebate scheme whereby money spent on mitigating measures to the home and land would be reimbursed 100% up to some reasonable limit. A rebate scheme has several advantages. The property owner feels compensated in the sense that he or she is enabled to counter some of the negative impact on the property and thereby improve it. The rebate satisfies the inadequacy of compensation in that it addresses the subjective nature of the impact and ensures the taxpayer that public money is spent on improving the livability of the property rather than merely financing the owner's move to another community. Improving the individual properties means the neighbourhoods will improve rather than deteriorate. Rebates could be offered for such mitigation measures as double glazing windows, insulating or constructing roofs, walls or fences to achieve privacy, tree planting and landscaping.

Where the track is elevated, effective mitigation measures will constitute a creative challenge. Some type of fencing attached to the sides of the track has been suggested. The Bridgestone Corporation of Japan has developed new sound barrier technology with its "calm zone" fencing system. This could be tested on sections of the Skytrain guideways.

However, there are advantages and disadvantages of this type of fencing that immediately come to mind. The appearance of the alignment and the view for the riders might be impaired. Also, the 'noise' likely emanates from the pillars and guideway as well as the trains and tracks, which the fencing on top of the guideways would not affect. On the other hand it would provide some noise reduction and privacy for the adjacent properties.

These are a few ideas offered for consideration and to generate further discussion of mitigation schemes which, in a coordinated program, should benefit all concerned with Skytrain. It may be that the more energy, resources and technical application that are expended on the system itself, especially for example to quieten it, the fewer the mitigation measures that will need to be undertaken. This is not a technical report and the costs and capabilities of technical improvements versus external mitigation, or how to balance both approaches, must be determined elsewhere. However, it is apparent that Skytrain produces certain significant effects which impact in a range of ways and degrees. The solution to reducing or eliminating the negative effects must therefore be multi-faceted and carefully coordinated.

5) Expropriation

Earlier in this report it was stated that for certain properties mitigation would not be appropriate. This is because these properties are situated so close to the guideway that mitigation would have no positive effect.

There are some homes which are so close to the alignment that they may be regarded as uninhabitable. The City of Vancouver has categorized certain properties as now unsuitable for residential purpcses. The occupants suffer from excessive noise and vibration, are towered over by concrete pillars and are left with properties unsuitable as residences. Properties which can be so categorized, where no mitigation would be effective, should be publicly purchased and redeveloped for non single detached residential use. Expropriation of properties could be coordinated with rezoning initiatives by the municipalities. Rezoning for commercial and higher density building would promote transit tolerant development and transform current external costs into positive benefits for the impacted communities. Expropriation in conjunction with municipal planning efforts would take greater advantage of Skytrain and mitigate the external costs at the same time without great or any public expenditure. The recent establishment of the new Expropriation Board provides an expert mechanism for processing acquisition of these properties.

Expropriation in this case is neither a compensation nor a mitigation measure. Rather it represents unfinished work on the part of B.C. Transit. It appears that the B.C. Transit property acquisition program was insufficient in view of the size and impact of the Skytrain system. These properties should have been expropriated as part of the property acquisition program. Those properties identified by their respective municipalities should be purchased at the present value representative of their value before Skytrain was planned, as determined by the Expropriation Board.

This would not prove to be an extravagent solution as there will be a comparatively small number of properties. What must be recognized is that there are various degrees of impact from a major public work and it is important to address each appropriately and promptly in order to prevent lawsuits and higher social and economic costs in the future. Every effort should be made to enhance a project's integration into the community on which it impacts. This will sharply reduce the number of dissatisfied individuals who may attempt to resist the project or to make expensive claims. The remaining reduced circle of severely impacted properties rendered unsuitable for their original purpose should be included in the land acquisition budget of the project. This treatment of the negative effects arising from public projects would be both fair and farsighted.

4. Summary of Major Conclusions and Recommendations

* Significant adverse effects of Skytrain on some adjacent residents are loss of privacy, shadowing, excessive noise, and a decrease in property values.

* These effects impact in varying degrees on the residents living along the alignment. They may all be remedied to some extent in fair and feasible ways.

* The responsibility of B.C. Transit extends beyond the provision of an efficient transportation service. Its responsibility includes minimizing the external costs of the system and distributing the burden equitably.

* A major continuing obligation of B.C. Transit is to protect the adjacent residential neighbourhoods from deterioration. To this end, further efforts should be directed towards community protection and enhancement rather than compensation to individuals.

* In the future, wherever practicable, Skytrain should not operate on elevated guideways through residential neighbourhoods.

* In the future, adequate property acquisition should be undertaken to avoid extreme adverse effects resulting from proximity to the guideway.

* Noise levels emanating from Skytrain should be reduced, minimally, to the levels guaranteed in the contract between UTDC and B.C. Transit. The ultimate objective should be to achieve noise levels at or below the CMHC outdoor noise maximum criteria of 55dB(Leq).

* Ample and attractive landscaping should be provided. Densely planted fast-growing conifers should be used wherever beneficial to provide screening and privacy as well as a recreational greenbelt.

* Solid wood fence barriers should be erected on public or private property as necessary to reduce noise levels received by adjacent residents.

* A rebate scheme should be made available to property owners for the reasonable costs of improvements made to minimize the impact of Skytrain on their properties. Improvements should include soundproofing and privacy enhancement measures.

* Where the track is elevated the erection of more effective sound barriers on the guideway itself should be considered.

* Properties determined by the respective municipalities to be unsuitable as residences should be expropriated for relative pre-Skytrain value.

* B.C. Transit and the provincial government should provide public assurance that they will not rely on statutory time limits to lawsuits until at least the end of 1988 to provide the opportunity for full and fair consideration of the issues raised in this report.

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